

(19)



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(11)

EP 0 845 970 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
26.01.2000 Bulletin 2000/04

(51) Int. Cl.⁷: **A61J 1/00**

(21) Application number: **96927224.4**

(86) International application number:
PCT/SE96/00989

(22) Date of filing: **06.08.1996**

(87) International publication number:
WO 97/05852 (20.02.1997 Gazette 1997/09)

(54) **BAG FOR CONTAINING A STERILE MEDICAL SOLUTION AND METHOD OF MIXING A STERILE MEDICAL SOLUTION**

BEUTEL FÜR EINE STERILE MEDIZINISCHE LÖSUNG UND VERFAHREN ZUM MISCHEN SOLCHER LÖSUNG

SAC DESTINE A CONTENIR UNE SOLUTION MEDICALE STERILE ET PROCEDE DE MELANGE D'UNE SOLUTION MEDICALE STERILE

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

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(30) Priority: **08.08.1995 SE 9502769**

(43) Date of publication of application:
10.06.1998 Bulletin 1998/24

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**EP-A- 0 442 406 US-A- 3 187 750
US-A- 4 403 992**

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convenient to the filling procedure. The moulded part can include grip portions for easy handling during storage and use etc.

Another variant of the present invention is shown in Fig. 5. The bag according to Fig. 5 comprises three compartments formed by two V-shaped welding lines 19,20. In other respects this embodiment is similar to the embodiment shown in Fig. 2.

Fig. 6 shows a variant of the embodiment according to Fig. 2 and includes three compartments 15,16 and 17 formed by welding lines 19 and 20. The upper compartment 15 is filled with glucose solution via introduction tube 21 and is connected to the large bottom compartment 16 to the lower compartment 17. The second compartment 16 is filled with glucose solution via introduction tube 21" extending from the upper border edge 3 through compartment 15 to compartment 16. Compartment 16 is connected to compartment 17 via connection tube 31. In all other respects this embodiment is similar to the embodiment according to Fig. 2.

Finally, Fig. 7 shows another embodiment of the invention having three compartments 15,16 and 17. A welding line 19 limits the large compartment 17 comprising electrolyte solution from compartments 15 and 16 comprising glucose solution. Welding line 19 is inclined and comprises two connection tubes 31". The operation is similar to the embodiment according to Fig. 2.

Each connection tube 31" is provided with several holes 43 connecting tube 31" to the compartment 15,16 for glucose, and a break pin 31 connecting tube 31" with the large compartment 17. In this way the connecting tube operates both as an introduction tube similar to tubes 21 of Fig. 2 and as a connection tube similar to tubes 31 of Fig. 2. Thus, a smaller number of tubes are required.

Several different embodiments of the invention have been described above with reference to Fig. 2-7. The different detailed constructions of each embodiment can be combined in further different ways.

It is realized that the bag will have different sizes depending on the intended field of use. The concentration and other features of the glucose-part can be different depending on the actual use, such as 20% - 50% or even more. Herein above, several embodiments of the invention have been described in the purpose of exemplifying the invention. The invention is only limited by the appended patent claims.

Claims

1. Container for enclosing a sterile medical solution containing glucose, for example a solution intended for peritoneal dialysis, comprising:
 - a first compartment (17) having a size sufficiently large for accommodating the sterile medical solution; and
 - at least two further compartments (15,16,15',16') separated from each other and from the first compartment by separation lines (19,20),
 characterized in that
 - said further compartments (15,16,15',16') all comprise glucose at a high concentration, for example above about 20%; and
 - said first compartment comprising the remaining portion of the sterile medical solution comprising an electrolyte solution, for example NaCl, CaCl₂, etc.; and
 - connection means (31,31',31",33) for selectively connecting said further compartments with said first compartment for mixing the contents of said further compartments with the contents of said first compartment for producing said sterile medical solution in at least three optionally selectable different concentrations of glucose.
2. Container according to claim 1, characterized in that said further compartments comprise a second compartment (15) and a third compartment (16) having the same volume and enclosing glucose in different concentrations, for example 30% and 50%, respectively.
3. Container according to claim 2, characterized in that said third compartment (16') has a larger volume than said second compartment (15') and in that the second and third compartments comprise glucose at the same high concentration, for example 50%.
4. Container according to claim 3, characterized in that said second compartment (15') comprises 60 ml glucose at 50%, said third compartment (16') comprises 100 ml glucose at 50%, and said first compartment (17) comprises 1900 ml of electrolytes comprising 262 mMoles Na⁺, 190 mMoles Cl⁻, 2,7 mMoles Ca⁺⁺, 0,5 mMoles Mg⁺⁺ and 80 mMoles lactate.
5. Container according to anyone of the preceding claims, characterized in that the separation lines (19,20) between the first compartment (17) and each of said further compartments (15,16,15',16') are inclined when the container is placed in a first mixing position wherein said further compartments are positioned above said first compartment.
6. Container according to claim 5, characterized by a first border edge (3) comprising introduction tubes (21,21',21") for introducing solution in said compartments.

7. Container according to claim 6, **characterized** in that said first border edge (3) is made of a single separate part.
8. Container according to claim 7, **characterized** in that said first border edge (3) comprises three introduction tubes (21), one for each compartment (15,16,15',16',17).
9. Container according to any one of the preceding claims, **characterized** in that said connection means is a connection tube (31,31',31'') including breakable means (33) and establishing fluid communication therethrough at activation of said breakable means.
10. Method for mixing sterile medical solution into at least three optionally selectable different concentrations of glucose, for example a solution intended for peritoneal dialysis, including the steps of:
 - providing a container including a first compartment (17) having a size sufficiently large for accommodating the sterile medical solution; and at least two further compartments (15,16) separated from each other and from the first compartment by separation lines (19,20), said further compartments (15,16) all comprising glucose at a high concentration, for example above about 20%; and said first compartment comprising the remaining portion of the sterile medical solution comprising an electrolyte solution, for example NaCl, CaCl₂, etc.;
 - providing fluid communications between one of said further compartments and said first compartment for mixing the contents thereof for providing a peritoneal dialysis solution having a first low concentration, for example about 1,5%, or a second intermediate concentration, for example about 2,5%, respectively of glucose; and
 - optionally providing fluid communication between another of said further compartments and said first compartment for providing a peritoneal dialysis solution having a third, higher concentration of glucose, for example about 4%.
11. Use of a container including a first compartment (17) having a size sufficiently large for accommodating a sterile medical solution; and at least two further compartments (15,16) separated from each other and from the first compartment by separation lines (19,20), said further compartments (15,16) all comprise glucose at a high concentration, for example above about 20%, and said first compartment comprising the remaining portion of the sterile medical solution comprising an electrolyte solution, for example NaCl, CaCl₂, etc., for providing said sterile medical solution in at least three optionally selectable different concentrations of glucose, for example a solution intended for peritoneal dialysis, by mixing the contents of the first compartment with the contents of one or several of said further compartments.

Patentansprüche

1. Behälter zum Einschließen einer Glucose enthaltenden sterilen medizinischen Lösung, wie beispielsweise einer Lösung für Peritonealdialyse, mit

einem ersten Abteil (17) mit einer ausreichenden Größe zur Aufnahme der sterilen medizinischen Lösung und

wenigstens zwei weiteren Abteilen (15, 16; 15', 16'), die voneinander und von dem ersten Abteil durch Trennlinien (19, 20) getrennt sind,

dadurch gekennzeichnet, daß

diese weiteren Abteile (15, 16; 15', 16') alle Glucose mit einer hohen Konzentration, wie beispielsweise oberhalb etwa 20 %, umfassen und

das erste Abteil den restlichen Anteil der sterilen medizinischen Lösung mit einer Elektrolytlösung, wie beispielsweise NaCl, CaCl₂ usw. umfaßt, und

eine Verbindungseinrichtung (31, 31', 31'', 33) zur selektiven Verbindung der weiteren Abteile mit dem ersten Abteil vorgesehen ist, um den Inhalt der weiteren Abteile mit dem Inhalt des ersten Abteils zu vermischen und so die sterile medizinische Lösung in wenigstens drei gegebenenfalls auswählbaren unterschiedlichen Glucosekonzentrationen zu erzeugen.
2. Behälter nach Anspruch 1, **dadurch gekennzeichnet**, daß die weiteren Abteile ein zweites Abteil (15) und ein drittes Abteil (16) mit dem gleichen Volumen und einem Gehalt an Glucose in unterschiedlichen Konzentrationen, wie beispielsweise 30 bzw. 50 %, umfassen.
3. Behälter nach Anspruch 2, **dadurch gekennzeichnet**, daß das dritte Abteil (16') ein größeres Volumen als das zweite Abteil (15') hat und das zweite und dritte Abteil Glucose mit der gleich hohen Konzentration, wie beispielsweise 50 %, umfassen.
4. Behälter nach Anspruch 3, **dadurch gekennzeichnet**, daß das zweite Abteil (15') 60 ml 50 %ige Glucose, das